

10/807,649

**REMARKS**

Upon receipt of this response, the Examiner is respectfully requested to contact the undersigned representative of the Applicant to arrange a telephone interview concerning the inventive merits of this application.

Claims 8-12, 14 and 15 are presently pending and the Examiner indicated that claim 11 would be allowable if rewritten in independent form to include all of the recitations and limitations of base claim 10, for which the Applicant respectfully thanks the Examiner. In response, claim 11 is rewritten in independent form and incorporates all of the recitations and limitations of base claim 10 and is now believed to be allowable.

Next, claims 8-10 and 12 are rejected, under 35 U.S.C. § 103(a), over DE 4041899 (hereafter referred to as "DE '899") in view of DE 4008303 (hereafter referred to as "DE '303") and in further view of Gndt '056 while claims 14 and 15 are rejected, under 35 U.S.C. § 103(a), over DE '899 in view of DE '303 in view of Gndt '056 in further view of Frost '358. The Applicant acknowledges and respectfully traverses the raised obviousness rejections in view of the above claim amendments and the following remarks.

Upon reviewing the cited prior art, however, the Applicant notes that none of the prior references in any way teaches, suggests or discloses the bearing sleeve (26, 26A, 26B, 26C) and support element (25, 25A, 25B, 25C) structure of the present invention whereby radial, axial and tangential forces, acting on a ratio conversion device which controls the gear ratio of the transmission, are transferred directly to the transmission housing, as presently claimed. As described in the present Application, this claimed structural feature permits a significantly smaller and lighter transmission assembly because the transmission elements, such as the transmission shafts and axles, are thereby not required to support the full forces acting on the transmission elements.

In particular, claim 8 is amended herein above, in the a similar manner to claim 11 which is indicated as reciting allowable subject matter, to now also include the recitations that at least one of the ratio conversion devices (8, 9) of the transmission is provided with a bearing sleeve (26, 26A, 26B, 26C) that supports at least one of the shifting elements (6, 7) and that the bearing sleeve (26, 26A, 26B, 26C) is, in turn, rigidly connected to a transmission housing (24) by at least one support element (25, 25A, 25B, 25C) so that radial, axial and tangential forces affecting the at least one ratio conversion device (8, 9) are thereby directly transmitted to the transmission housing (24). In this regard, it will be noted that the amendment to claim 8 involves moving the recitations of claim 9 into claim 8 and while claim 9 is amended to include

10/07 - 3:28 PM

- 4 -

10/807,649

certain recitations canceled from claim 8 so that the subject matter of claim 9 remains essentially unchanged.

Turning now to DE '899 in view of the recitations of claims 8 and 11, the Applicant notes that the Examiner interprets DE '899 as having a bearing that is equipped with a sleeve 10 on which a shifting element 5 is at least partially located. The Applicant respectfully disagrees with this interpretation of DE '899, first noting that the sleeves 10 and 11 is not supported to a transmission housing in any way—rigidly or otherwise—and secondly noting that the sleeves 10 and 11 are not bearings. As described by DE '899 and as clearly shown in the figures of DE '899, sleeves 10 and 11 are instead merely component parts of shafts 1 and 2, which are screwed into shafts 1 and 2 to form the outer surfaces of shafts 1 and 2. As such, it is clear that sleeves 10 and 11 do not support bearings, as with the present invention. It is therefore the Applicant's position that DE '899 has no teaching(s), suggestion(s) or motivation(s) relevant to the present invention, as recited in claims 8 and 11.

Turning now to DE '303, the Examiner interprets DE '303 as teaching a bearing 4 by which an axial force is transmitted to the transmission housing via a device 16 when the device 16 is engaged by a shifting element 15. The Applicant again respectfully disagrees with this interpretation of DE '303, first noting that the element identified by reference number 4 and referred to as a "bearing" is instead clearly described by DE '303 as an "intermediate plate" extending from a point between a flange 210, which is located between main housing 20 and second housing 30, and a gear-section or coupling 16 of the clutch 15. As such, intermediate plate 4 is not a bearing or sleeve bearing of any form.

In addition, it is clear that even if intermediate plate 4 were to be identified as a bearing of some sort, which is completely contrary to the description of intermediate plate 4 in DE '303, the shifting element of DE '303, which might be clutch 15, is not supported by, is not connected to and is not located even partially on intermediate plate 4 and it is instead gear section 16, which might broadly be interpreted as a "ratio conversion device", that is connected in some way to intermediate plate 4, which is again contrary to the recitations of claims 8 and 11.

It is also noted that DE '303 does not, in fact, describe intermediate plate 4 as supporting any form of axial force, contrary to the Examiner's statement, but that DE '303 instead describes intermediate plate 4 as transmitting torque forces from coupling or gearset 16 to the transmission housing. It is therefore the Applicant's position that DE '303 has no teaching(s), suggestion(s) or motivation(s) relevant to the present invention, as recited in claims 8 and 11.

10/807,649

It is further the Applicant's position that because neither DE '899 nor DE '303 describe or suggest a ratio conversion device having a bearing sleeve that supports a shifting element and that is rigidly connected to a transmission housing by a support element to directly transfer radial, axial and tangential forces affecting the ratio conversion device to the transmission housing, the combination of DE '899 and DE '303 cannot and does not in any way suggest or teach these elements of the present invention.

Next considering the teachings of Gmandt '056, the Examiner interprets Gmandt '056 as teaching that radial and tangential forces can be transmitted to a transmission housing by a radial plate 5 and a tangential bracket 6 connected between the transmission housing and a main gear 4. Gmandt '056 describes a dual layshaft transmission having two layshafts 7 and 8, a main shaft 15 with main wheel 4 centered therebetween, and a power-take-off (PTO) shaft 2 supported by a "wobbly" bearing 9 and supporting a PTO wheel 3 generally parallel to layshafts 7 and 8 and main shaft 16. PTO wheel 3 meshes with and is driven by main wheel 4 and a plate 5 is supported between PTO shaft 2 and main wheel 4 to absorb radial forces between PTO wheel 3 and main wheel 4 whereby the mounting of plate 5 between main wheel 4 and PTO shaft 2, rather than between main shaft 16 and PTO shaft 2, allows main shaft 16 to be freely self-centering. A plate 5 is connected to the transmission housing 18 by a bracket 6 so that bracket 6 absorbs tangential forces between plate 5 and PTO shaft 2, so that, together with the "wobbly" support provided by bearing 9, PTO shaft 2, plate 5 and main wheel 4 form a single unit allowing the transmission of torque with relative freedom of movement between PTO shaft 2 and main wheel 4.

It must, therefore, first be noted that the fundamental concept embodied in Gmandt '056 is completely antithetical and contrary to that of the present invention as recited in claims 8 and 11. That is, according to the presently claimed invention a ratio conversion device is supported by a bearing sleeve that is, in turn, supported by a rigid support connected to the transmission housing so that axial, radial and tangential forces acting on a shifting element associated with the ratio conversion device are supported by the transmission housing, so that the ratio conversion device and, in particular, the shifting element, as rigidly supported by the transmission housing and cannot move. In complete contrast from the presently claimed invention, however, the structure taught by Gmandt '056 is specifically intended to allow a support shaft and wheel to have a degree of freedom of movement relative to other shafts and wheels of the transmission so that the moveable shaft and wheel can be self-centering. It is therefore apparent that in order to meet its intended fundamental purpose, the transmission structure taught by Gmandt '056 cannot and does not provide any form of rigid support for a

10/27/2007 11:38 PM

- 6 -

10/807,649

ratio conversion device or shifting element and that it could do so only in direct contradiction to the specific teachings of Gmandt '056.

It is thereby apparent that in complete contrast from the presently claimed invention, as recited in claims 8 and 11, none of the elements of the Gmandt '056 structure are connected to or support any form of ratio conversion device or shifting element, that the Gmandt '056 structure does not include any form of sleeve bearing, and that the Gmandt '056 structure does not include any form of sleeve bearing rigidly connected to a transmission housing by a support element to transfer radial, axial and tangential forces acting on a shifting element or ratio conversion device to the transmission housing.

It is also apparent that, again in complete and fundamental contrast from the present invention, that the Gmandt '056 structure does not and cannot prevent motion between the ratio conversion device of shifting element and the transmission housing, but instead specifically--and by design and intention--allows at least radial movement and at least some degree of tangential movement between the supported elements and the transmission housing. It is, therefore, the Applicant's position that Gmandt '056 has no teaching(s), suggestion(s) or motivation(s) relevant to the present invention, as recited in claims 8 and 11.

It is further the Applicant's position that because neither DE '899, nor DE '303 nor Gmandt '056 in any way describe or suggest a ratio conversion device having a bearing sleeve that supports a shifting element and that is rigidly connected to a transmission housing by a support element to directly transfer radial, axial and tangential forces affecting the ratio conversion device to the transmission housing, the combination of DE '899 and DE '303 and Gmandt '056 cannot, and does not, in any way teach, suggest or disclose these specifically recited elements of the present invention.

Lastly considering Frost '358, the Examiner cites Frost '368 as teaching a transmission having ratio conversion devices and shifting elements for forming power flow paths through the transmission and constructed as a summing transmission in the form of a planetary gearshift and as a power split countershaft transmission. While Frost '358 is of some peripheral interest with respect to the present invention, Frost '358 does not have any teaching(s), suggestion(s) and/or motivation(s) are pertinent or relevant to the present invention except for showing a type of transmission providing a general, conventional context in which the present invention could be implemented. Frost '358, however, has no teaching(s), suggestion(s) or motivation(s) relevant to the present invention, as recited in claims 8 and 11, as discussed herein above.

It is further the Applicant's position that because neither DE '899, nor DE '303, nor Gmandt '056 nor Frost '358 in any way describe, suggest or disclose a ratio conversion device

7/2/07 12:54 PM

- 7 -

10/807,649

having a bearing sleeve that supports a shifting element and that is rigidly connected to a transmission housing by a support element to directly transfer radial, axial and tangential forces affecting the ratio conversion device to the transmission housing, the combination of DE '899 and DE '303 and Gmandt '056 and Frost '358 cannot, and does not suggest or teach these elements of the present invention as recited in claims 8 and 11.

It is, therefore, the Applicant's position that since claims 9 and 12 are dependent from claim 8 and thereby incorporate all recitations and limitations of claim 8, claims 9 and 12 are thereby patentably distinguished over and from DE '899, DE '303, Gmandt '056 and Frost '358 for the reasons discussed above.

In conclusion, therefore, the Applicant respectfully requests that the Examiner reconsider and withdraw all rejections of claims 8-10, 12, 14 and 15 over DE '899, DE '303, Gmandt '056 and/or Frost '358 and all combinations thereof, and allow claims 8-10, 12, 14 and 15 as amended herein above.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the DE '899, DE '303, Gmandt '056 and/or Frost '358 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

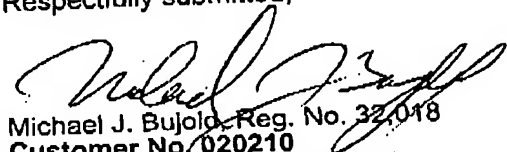
7/24/07 2:33 PM

- 8 -

10/807,649

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Michael J. Bujold, Reg. No. 32,018  
Customer No. 020210  
Davis Bujold & Daniels, P.L.L.C.  
112 Pleasant Street  
Concord, NH 03301-2931  
Telephone 603-226-7490  
Facsimile 603-226-7499  
E-mail: [patent@davisandbulold.com](mailto:patent@davisandbulold.com)